

Amendment and Response

Applicant: Norman L. Oberski et al.

Serial No.: 10/6232,848

Filed: July 18, 2003

Docket No.: A126.113.102

Title: INSPECTION TOOL WITH A 3D POINT SENSOR TO DEVELOP A FOCUS MAP

IN THE CLAIMS

Please amend claims 1-6 and 11 as follows:

- 1.(Currently Amended) An inspection system comprising:
 a primary optical inspection device including a focusing mechanism for optically
 inspecting a sample; and
 an auxiliary sensor for mapping a sample height by obtaining height data for at least one
 point on the sample apart from the focusing mechanism.
- 2.(Currently Amended) The inspection system of claim 1, wherein the height data is used
to position ~~an~~ the inspection device in focus during an inspection of the sample.
- 3.(Currently Amended) The inspection system of claim 1, wherein the height data is used
in an interpolation to calculate an exact height of each picture needed for the inspection of the
sample by the inspection device.
- 4.(Currently Amended) The inspection system of claim 1, wherein mapping the sample
height is performed as a separate operation before ~~the~~ inspection of the sample by the inspection
device occurs.
- 5.(Currently Amended) The inspection system of claim 1, wherein the process of mapping
the sample height is performed concurrent with ~~the~~ inspection of the sample by the inspection
device.
- 6.(Currently Amended) The inspection system of claim 1, wherein the auxiliary sensor is
used to measure ~~the~~ a difference in height of features on the sample.

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7.(Original) The inspection system of claim 6, wherein the features measured comprise gold or solder interconnects.

8.(Original) The inspection system of claim 1, wherein the height data comprises a pattern comprising a single point, a random set of points, a specified set of points, or a fixed 2D grid of points.

9.(Original) The inspection system of claim 1, further comprising:
a calibrator for finding the offset between the auxiliary sensor and an inspection lens or matrix of lenses.

10.(Original) The inspection system of claim 1, wherein the auxiliary sensor comprises a 3D point sensor.

11.(Currently Amended) An inspection system comprising:
a camera for inspecting a wafer; and
a 3D point sensor apart from the camera for determining the heights of a plurality of points on the wafer surface before the wafer is inspected by the camera;
wherein the heights of the plurality of points on the wafer surface are used for setting the focus of the camera.

12.(Original) The inspection system of claim 11, further comprising:
an inspection platform for holding the wafer while the wafer is inspected.

13.(Original) The inspection system of claim 12, further comprising:
a wafer alignment device coupled to the inspection platform for moving the inspection platform relative to the camera.

14.(Original) The inspection system of claim 11, further comprising:

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an objective for use with the camera for inspecting the wafer.

15.(Original) The inspection system of claim 14, wherein the 3D point sensor has an equal or better depth of field than the objective to eliminate the need for focusing during inspection of the wafer.

16.(Original) The inspection system of claim 11, further comprising:

a plurality of selectable objectives for selective use with the camera for inspecting the wafer.

17.(Original) The inspection system of claim 11, wherein the 3D point sensor is a confocal point sensor.

18.(Original) A method for inspecting a wafer comprising:

providing an inspection sensor;

providing an auxiliary sensor;

obtaining height data of a surface of the wafer using the auxiliary sensor; and

inspecting the surface of the wafer by focusing the inspection sensor using the height data.

19.(Original) The method of claim 18, wherein the inspection sensor comprises a camera.

20.(Original) The method of claim 19, wherein inspecting the surface of the wafer by focusing the inspection sensor using the height data comprises interpolating the height data to determine heights at which to take pictures of the wafer.

21.(Original) The method of claim 18, wherein the auxiliary sensor comprises a 3D point sensor.